



**SLOVENSKI STANDARD**  
**oSIST prEN 1555-3:2009**

**01-februar-2009**

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**Cevni sistemi iz polimernih materialov za oskrbo s plinastimi gorivi - Polietilen (PE) - 3. del: Fitingi**

Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings

Kunststoff-Rohrleitungssysteme für die Gasversorgung - Polyethylen (PE) - Teil 3: Formstücke

Systèmes de canalisations en plastique pour la distribution de combustibles gazeux - Polyéthylène (PE) - Partie 3: Raccords

**Ta slovenski standard je istoveten z: prEN 1555-3**

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## Plastics piping systems for the supply of gaseous fuels - Polyethylene (PE) - Part 3: Fittings

Systèmes de canalisations en plastique pour la distribution  
de combustibles gazeux - Polyéthylène (PE) - Partie 3:  
Raccords

Kunststoff-Rohrleitungssysteme für die Gasversorgung -  
Polyethylen (PE) - Teil 3: Formstücke

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 155.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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## Foreword

This document (prEN 1555-3:2008) has been prepared by Technical Committee CEN/TC 155 "Plastics piping systems and ducting systems", the secretariat of which is held by NEN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1555-3:2002.

It has been prepared in liaison with Technical Committee CEN/TC 234 "Gas supply".

This standard is a part of a System Standard for plastics piping systems of a particular material for a specified application. There are a number of such System Standards.

System Standards are based on the results of the work undertaken in ISO/TC 138 "Plastics pipes, fittings and valves for the transport of fluids", which is a Technical Committee of the International Organization for Standardization (ISO).

They are supported by separate standards on test methods to which references are made throughout the System Standard.

The System Standards are consistent with general standards on functional requirements and on recommended practice for installation.

EN 1555 consists of the following parts, under the general title *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE)*:

- *Part 1: General*
- *Part 2: Pipes*
- *Part 3: Fittings* (this standard)
- *Part 4: Valves*
- *Part 5: Fitness for purpose of the system*
- *Part 7: Guidance for assessment of conformity* (CEN/TS)

NOTE The document dealing with recommended practice for installation which was initially submitted for CEN enquiry as prEN 1555-6 [1] was withdrawn when EN 12007-2 [1], prepared by CEN/TC 234 *Gas supply*, was published with the title "Gas supply systems - Pipelines for maximum operating pressure up to and including 16 bar – Part 2: Specific functional recommendations for polyethylene (MOP up to and including 10 bar)".

## Introduction

The System Standard, of which this is Part 3, specifies the requirements for a piping system and its components made from polyethylene (PE) and which is intended to be used for the supply of gaseous fuels.

Requirements and test methods for material and components, other than fittings, are specified in prEN 1555-1:2008, prEN 1555-2:2008 and prEN 1555-4:2008. Characteristics for fitness for purpose are covered in prEN 1555-5:2008. CEN/TS 1555-7 gives guidance for assessment of conformity. Recommended practice for installation is given in EN 12007-2 [2] prepared by CEN/TC 234.

This part of EN 1555 covers the characteristics of fittings.

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## 1 Scope

This part of EN 1555 specifies the characteristics of fusion fittings made from polyethylene (PE) as well as of mechanical fittings for piping systems in the field of the supply of gaseous fuels.

It also specifies the test parameters for the test methods referred to in this standard.

In conjunction with the other parts of EN 1555 (see Foreword), it is applicable to PE fittings, their joints and to joints with components of PE and other materials intended to be used under the following conditions:

- a) a maximum operating pressure, MOP, up to and including 10 bar <sup>1)</sup>;
- b) an operating temperature of 20 °C as reference temperature.

NOTE 1 For other operating temperatures, derating coefficients should be used, see prEN 1555 5:2008.

EN 1555 covers a range of maximum operating pressures and gives requirements concerning colours and additives.

NOTE 2 It is the responsibility of the purchaser or specifier to make the appropriate selections from these aspects, taking into account their particular requirements and any relevant national regulations and installation practices or codes.

This standard is applicable for fittings of the following types:

- a) electrofusion socket fittings;
- b) electrofusion saddle fittings;
- c) spigot end fittings (for butt fusion using heated tools and electrofusion socket fusion);
- d) mechanical fittings.

The fittings can e.g. be in the form of couplers, equal and reduced tees, reducers, bends or caps.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 682, *Elastomeric seals — Materials requirements for seals used in pipes and fittings carrying gas and hydrocarbon fluids*

prEN 1555-1:2008, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 1: General*

prEN 1555-2:2008, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 2: Pipes*

prEN 1555-5:2008, *Plastics piping systems for the supply of gaseous fuels — Polyethylene (PE) — Part 5: Fitness for purpose of the system*

EN 1716, *Plastics piping systems — Polyethylene (PE) tapping tees — Test method for impact resistance of an assembled tapping tee*

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<sup>1</sup> 1 bar = 0,1 MPa



EN 12117, *Plastics piping systems — Fittings, valves and ancillaries — Determination of gaseous flow rate/pressure drop relationships*

EN 10226-1, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-2, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

EN ISO 1133:2005, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics* (ISO 1133:2005)

EN ISO 1167-1:2006, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 1: General method* (ISO 1167-1:2006)

EN ISO 1167-2, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 2: Preparation of pipe test pieces* (ISO 1167-2:2006)

EN ISO 1167-3, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 3: Preparation of components* (ISO 1167-3:2007)

EN ISO 1167-4, *Thermoplastics pipes, fittings and assemblies for the conveyance of fluids — Determination of the resistance to internal pressure — Part 4: Preparation of assemblies* (ISO 1167-4:2007)

EN ISO 3126, *Plastics piping systems — Plastics piping components — Measurement and determination of dimensions* (ISO 3126:2005)

ISO 228-1, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation*

ISO 10838-1<sup>2)</sup>, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 1: Metal fittings for pipes of nominal outside diameter less than or equal to 63 mm*

ISO 10838-2<sup>2)</sup>, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 2: Metal fittings for pipes of nominal outside diameter greater than 63 mm*

ISO 10838-3<sup>2)</sup>, *Mechanical fittings for polyethylene piping systems for the supply of gaseous fuels — Part 3: Thermoplastic fittings for pipes of nominal outside diameter less than or equal to 63 mm*

ISO/FDIS 11357-6:2008, *Plastics — Differential scanning calorimetry (DSC) — Part 6: Determination of oxidation induction time (isothermal OIT) and oxidation induction temperature (dynamic OIT)*

ISO 13953, *Polyethylene (PE) pipes and fittings — Determination of the tensile strength and failure mode of test pieces from a butt-fused joint*

ISO 13954, *Plastics pipes and fittings — Peel decohesion test for polyethylene (PE) electrofusion assemblies of nominal outside diameter greater than or equal to 90 mm*

ISO 13955, *Plastics pipes and fittings — Crushing decohesion test for polyethylene (PE) electrofusion assemblies*

ISO/CD 13956:2008, *Plastics pipes and fittings — Determination of cohesive strength — Tear test for polyethylene (PE) assemblies*

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<sup>2</sup> Under revision.

### 3 Terms and definitions, symbols and abbreviations

For the purposes of this European Standard, the terms and definitions, symbols and abbreviations given in prEN 1555 1:2008 apply, together with the following.

#### 3.1

##### **electrofusion socket fitting**

polyethylene (PE) fitting which contains one or more integral heating elements, that are capable of transforming electrical energy into heat to realise a fusion joint with a spigot end or a pipe

#### 3.2

##### **electrofusion saddle fitting**

polyethylene (PE) fitting which contains one or more integral heating elements, that are capable of transforming electrical energy into heat to realise a fusion joint onto a pipe

##### 3.2.1

##### **tapping tee**

electrofusion saddle fitting (top loading or wrap round) which contains an integral cutter, to cut through the wall of the main pipe

NOTE The cutter remains in the body of the saddle after installation.

##### 3.2.2

##### **branch saddle**

electrofusion saddle fitting (top loading or wrap round) which requires an ancillary cutting tool for drilling a hole in the adjoining main pipe

#### 3.3

##### **mechanical fitting**

fitting, that generally includes a compression part to provide pressure integrity, leaktightness and resistance to end loads, for assembling polyethylene (PE) pipe to another PE pipe or any other element of the piping system

NOTE 1 A pipe supporting sleeve providing a permanent support for a polyethylene (PE) pipe to prevent creep in the pipe wall under radial compressive forces, is applicable. The metallic parts of the fitting can be assembled to metallic pipes by screw-threads, compression joints, welded or flanged connections, including PE flanges. In some cases the supporting sleeve at the same time constitutes a grip ring.

NOTE 2 The fitting can allow either a dismantable or permanently assembled joint.

NOTE 3 The mechanical fitting can be supplied for field assembly or pre-assembled by the manufacturer.

#### 3.4

##### **spigot end fitting**

polyethylene (PE) fitting where the outside diameter of the spigot end is equal to the nominal outside diameter,  $d_n$ , of the corresponding pipe

#### 3.5

##### **voltage regulation**

control of energy supplied, during the fusion process of an electrofusion fitting, by means of the voltage parameter

#### 3.6

##### **intensity regulation**

control of energy supplied, during the fusion process of an electrofusion fitting, by means of the current parameter